■ EDITORIAL

A test for market forces: Clean water and UV light

BY PAULA DIPERNA

Recently, at a resort hotel on a water-short island, few people seemed concerned about water. The hotel went only so far as to discreetly place a small card near the sink that said, "Help us by keeping water use in mind." Meanwhile, in the restaurant, eager waiters kept topping up large glasses of iced drinking water almost the moment after a diner had taken a sip. Water shortages don't seem to mean a thing anywhere the affluent gather.

Yet severe water scarcities are among the most worrying trends for the future. The United Nations Industrial Organization (UNIDO) suggests that 1995's industrial water use could double by the year 2025, causing a four-fold increase in the pollution load on the world's fresh water.

At the same time, water-use inefficiencies persist, despite trends toward privatizing water services, and the world's poor people still cannot imagine the day when

clean water will be readily available to them, let alone to be taken for granted.

An encouraging sign is emerging currently on the water front, as a new technology developed over three years by a research team headed by innovative physicist, Ashok J. Gadgil of the Lawrence Berkeley National Laboratory, moves toward mass commercial application and, one hopes, closer to the people who need it most.

Gadgil held audiences rapt in June 1996, at the Habitat II conference in Istanbul, with his description of a gravity-driven water purification unit that uses ultra-violet (UV) light to remove bacteria and viruses from water to make it safe to use and drink. The costs were below negligible—roughly two cents per metric ton or about seven cents a year to disinfect one year's drinking supply for one adult.

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Gadgil's apparatus seemed to hold out a promising solution so accessible and affordable, one would expect to soon find the UV units in every community lacking potable water around the world. Customers would hardly seem to be lacking. But, in a world focused on private sector forces as the solution for development, commercial viability of such new technologies has to be established, and customers must have enough money to buy.

A small group of investors who had heard of Gadgil's work have formed a for-profit company, WaterHealth International, with an initial capitalization of US$300,000, and successfully negotiated a licensing and royalty agreement with the Livermore Laboratory for the rights to manufacture and market the UV water units worldwide, except in India, where a different firm was granted the rights. According to WaterHealth, a unit that can purify water to meet the daily drinking and other potable water needs of 500 to 1,500 people in developing countries will sell at the wholesale price of roughly $575.

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The unit requires only 40 watts of electricity to light the needed UV bulb, which means the water unit can run on a car battery or bicycle-pump generator. Where even such rudimentary power sources are lacking, separate power packs can be added to the water unit to harness solar or wind power, for $600 to $1,200 additional cost per unit, depending on local conditions. The power packs even generate surplus power that could be put to other uses.

This all means that about 1,000 people can have their daily water needs met, plus pick up some extra electrical power, for not more than $2,000 in initial investment, with very low maintenance thereafter for the 15-year life of the unit. This is a cost roughly equivalent to a 10-day stay for one person in the hotel where water conservation seemed a mere footnote.

WaterHealth says the first UV units will be ready to ship this fall, and it has begun to establish networks of local retail distributors around the world, including micro-enterprises using micro-credit loans. But what can insure that the units will be priced at the retail level cheaply enough to be accessible to the rural poor, yet high enough to return a profit to permit continued mass production? Will governments be sufficiently motivated to meet their people's water health needs to buy and install the units if a community is too poor itself to do so? Or will governments shun this too as "subsidy"?

In short, will such an apparently appropriate and affordable technology get into the hands that need it most, especially since Gadgil himself is acutely mindful of the development needs of the poor.

The UV technology involved has gone from concept to practice, production and international outreach in just a few years—nearly record time—presumably because its viability seems a given. Thus, this relatively simple and inexpensive device offers a true chance for profitability demands and human needs to be met together. The test will be as clear as water.

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